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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/590,527	06/08/2000	Salman Akram	4101US (99-0572)	1156

7590 03/25/2004

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EXAMINER
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MITCHELL, JAMES M

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/590,527

Applicant(s)

AKRAM, SALMAN

Examiner

James M. Mitchell

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 38-42 and 45-69 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 38-42 and 45-69 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 38 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. there is no support in the specification stabilizer includes a plurality of superimposed, contiguous, mutually adheres layers of the same material.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 38-43, 45-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (APA) in combination with Hashimoto (US 6,410,366) and Sasaki (JP 402210329)

APA (FIG 1 and 2; Spec. Page 2, 3, 4 & 13) discloses an assembly, test substrate and a CSP, semiconductor device that is a die (200) comprising an inherent substrate formed from a wafer or chip scale package and contact pad (202) being arranged in at least one substantially linear relationship positioned at or proximate a centerline of said substrate and being configured to communicate with corresponding test pads (230) of a test substrate (210) upon disposing said substrate face-down over said test substrate; with at least one conductive structure (220) disposed between said test substrate and said semiconductor device with said test substrate inherently in a plane (via X-axis going through middle of substrate, 214).

APA does not appear to disclose at least one elongated stabilizer protruding from said surface wherein said stabilizer is dielectric or photopolymer that is at least a semisolid that is comprised of a plurality of superimposed, contiguous, mutually adhered layers of the same material, said at least one stabilizer inherently being configured to at least partially stabilize an orientation of the semiconductor device upon disposal thereof face-down over said test substrate; wherein said stabilizer protrudes from said surface at most a distance between a plane of said surface of said substrate and a plane of a surface of said test substrate upon disposing said substrate face-down over said test substrate; and at least one said stabilizer positioned to be located proximate a corner of said surface and has a cross-sectional plan of an quadrilateral; said stabilizer secured

to said surface of said test substrate or that the stabilizer is elongated in a direction parallel to a plane in which said substrate is located.

However Hashimoto (Fig 1a-c; Col. 5, Lines 34-58) utilizes at least one dielectric and insulating, elongated stabilizer (11, 21; Col. 5, Lines 41-44 & Col. 7, Lines 5-7) protruding from said surface wherein said stabilizer (via both portion 11 & 21) is dielectric that is at least a semisolid and that is inherently comprised of a plurality of superimposed are contiguous, mutually adhered layers, said at least one stabilizer inherently being configured to at least partially stabilize an orientation of the semiconductor device upon disposal thereof face-down over a substrate; wherein said stabilizer protrudes from said surface at most a distance between a plane of said surface of said substrate and a plane of a surface of said substrate upon disposing said substrate face-down over substrate; and at least one said stabilizer positioned to be located proximate a corner of said surface and has a cross-sectional plan of a quadrilateral; said stabilizer secured to said surface of said substrate and the stabilizer is elongated in a direction parallel to a plane in which said substrate is located.

It would have been obvious to one of ordinary skill in the art to incorporate stabilizers that are comprised of a plurality of superimposed, contiguous, mutually adhered layers with the test substrate of APA in order to provide support as taught by Hashimoto (Col. 5, Line 53).

While neither APA nor Hashimoto appear to disclose that the stabilizer is a photopolymer.

Sasaki (Fig 1) utilizes a photopolymer (16).

It would have been obvious to one of ordinary skill in the art to form the stabilizer of APA and Hashimoto from a photopolymer in order to provide an insulating material for the stabilizer as required by Hashimoto (Col. 5, Lines 41-44; Col. 7, Lines 5-7) and that provides uniformity of gap as taught by Sasaki (English Constitution).

### ***Response to Arguments***

Because applicant filed an RCE on December 3, 2003, applicant did not respond to examiner's final office action of November 6, 2003. However, the pending claims are still those defined by applicant's amendment filed September 3, 2003, since no new preliminary amendment has been set forth. Examiner, in an effort to expedite the prosecution of this application, has restated its position to applicant's amendment and arguments of September 3, 2003.

Applicant's arguments filed September 3, 2003 with respect to claims 38-55, 59-63 and 67-69 have been considered but are unpersuasive.

In regards to applicant's statement that Hashimoto does not teach or suggest a test substrate, examiner emphasizes that Hashimoto was not relied on for that teaching, but for teaching the use of a stabilizer.

As for applicant's claim that Hashimoto does not teach a stabilizer that is elongated in direction parallel to a plane in which the substrate is located, examiner respectfully disagrees.

Both the substrate and stabilizer has a top surface that travels along an X plane. Since the stabilizer is formed on the substrate, its x plane is disclosed as parallel to the substrate (Fig 1B).

As to applicants argument that Hashimoto lacks teaching that bumps 11 and 21 are adhered together, examiner disagrees. Hashimoto discloses the use of both bumps embedded in adhesive 40 for face down bonding (Col. 7, Lines 40-44), as such the bumps at the very least are adhered by the adhesive material surrounding the bumps.

As for applicant's claim that neither APA nor Hashimoto disclose a teaching of a semiconductor wafer with stabilizers, examiner disagrees. Hashimoto explicitly discloses a chip with stabilizers. Since the ordinary plain meaning of a chip is a small wafer of semiconductor material as defined by Merriam Webster, Hashimoto discloses a wafer with stabilizers.

Lastly, applicant contends that neither applicant's admitted prior art or Hashimoto teach or suggest that the semiconductor device comprise a Chip Scale Package, CSP, examiner respectively disagrees. Applicant's specification Page 2, recites that the semiconductor device includes CSP, which is illustrated in Fig 1; therefore, Hashimoto is not needed for the limitation of CSP. Hashimoto is relied only for the problem of providing stabilizers to support a structure.

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 6:30-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jmm



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